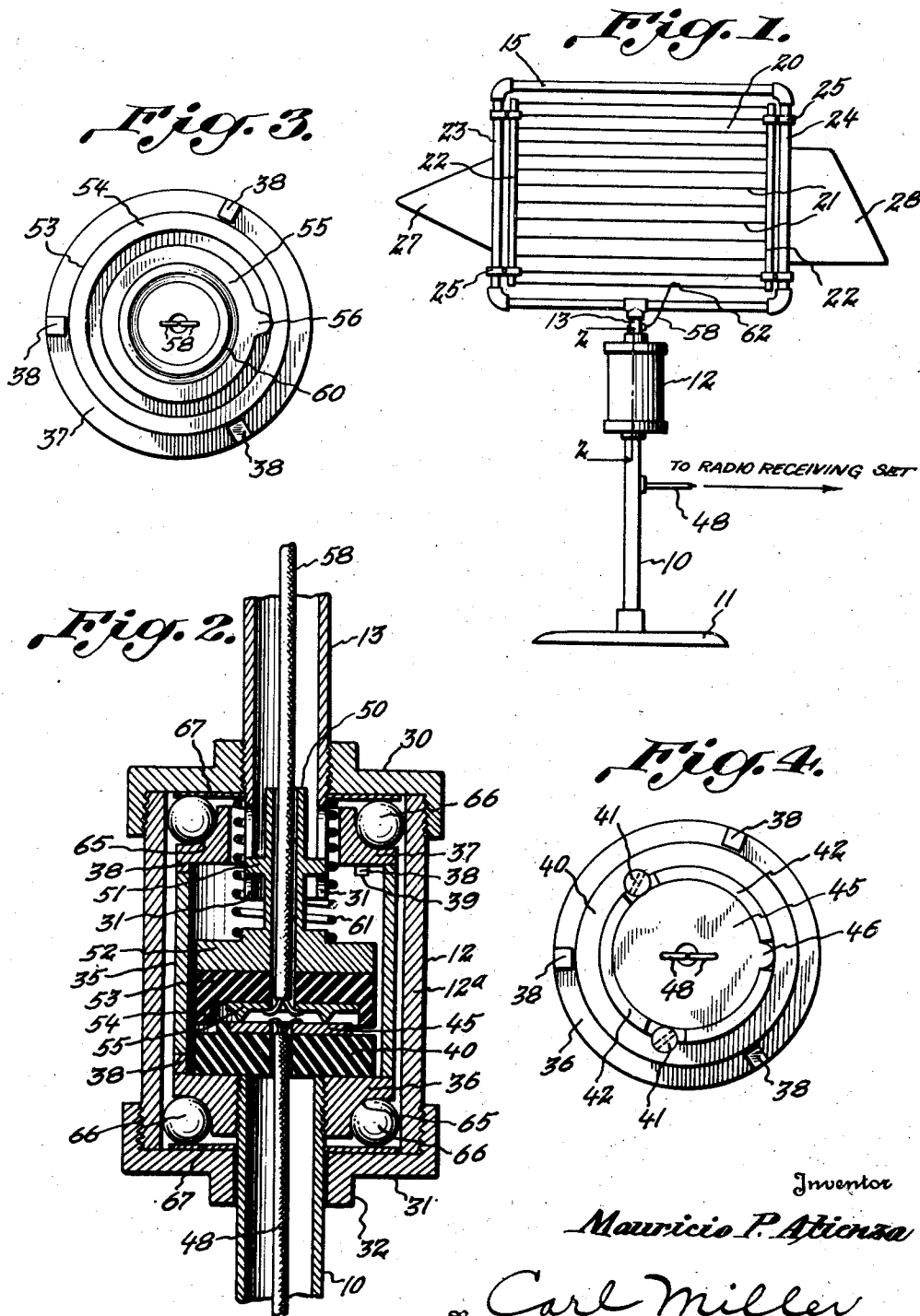


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M. P. ATIENZA
RADIO ANTENNA DEVICE

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RADIO ANTENNA DEVICE

Mauricio P. Atienza, Brooklyn, N. Y.

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This invention relates to a radio antenna, and more particularly to a new and improved aerial device for radio receiving sets and the general object is to provide a simple, efficient and inexpensive aerial of a novel construction.

A prime object of the invention is to provide a rotatable antenna mounted on a suitable framework, the whole being supported through the medium of anti-friction bearings on a suitable housing support.

Another object of the invention resides in the provision of a contact device within the housing support which will function for all positions of the rotating antenna.

A further object of the invention relates to the provision of a resilient means to maintain the relatively movable parts of the contact device in positive engagement at all times, said resilient means also functioning as an automatic wear take-up medium for the contact device.

Other objects of the invention will be more clearly pointed out in the following detailed description and in the claims directed to preferred embodiments of the invention, it being understood, however, that many variations may be made of the size, shape and arrangement of parts, in the whole organization, without departing from the spirit and scope of the invention, as set forth.

In the drawing forming a part of this application:—

Figure 1 is an elevational view of the radio antenna device.

Figure 2 is a detail vertical sectional view through the housing containing the contact device and rotating structure, taken on line 2—2, Figure 1.

Figure 3 is a plan view of one of the parts of the contact device.

Figure 4 is a bottom plan view of the other co-operating part of the contact device.

Referring to the drawing by reference numerals, my device comprises a vertical tubular standard or column 10, rigidly supported on its lower end by the base or pedestal 11. Enclosing the upper end of the standard 10 is a rotating cylindrical casing or housing 12 that is rigidly connected to the lower end of a tubular member 13. Rigidly attached in any suitable manner to the upper end of the tubular member 13 is a rectangular frame 15 formed of pipe or any other suitable material. As shown in Figure 1, the frame 15 is centrally supported on its lower side by the tubular member 13.

Arranged within the frame 15 and in the plane

thereof, is an antenna loop or aerial 20. This comprises a continuous length of suitable antenna wire mounted in parallel horizontal strands 21 on the vertical supports 22 arranged inwardly of and adjacent to the vertical sides 23, 24 of the frame 15, and connected thereto by the insulator clips 25.

If desired, this arrangement of the antenna may be reversed, that is the strands thereof may be arranged vertically, with the supports 22 connected to the horizontal bars of the frame 15.

Inasmuch as the frame 15 is mounted for rotatable movement, in the manner to be hereinafter described, the same may be readily utilized as a wind vane by the attachment thereto of the vanes 27 and 28.

The housing 12 comprises an upper cap 30 threadedly attached to the tubular member 13 at a point inwardly of the bottom edge thereof, that portion of the tubular member 13 projecting into the housing 12 being provided with diametrically opposed slots 31 for a purpose to be hereinafter described. The cap 30 is threadedly attached to the upper end of cylindrical body 12a of the housing 12, the lower end thereof being provided with a similar cap 31 having a central apertured boss 32.

The upper end of the tubular standard 10 is adapted to project through the apertured boss 32 of the cap 30 into the housing 12, to which end is rigidly attached the casing 35 of a contact device.

The casing 35 of the contact device comprises end abutment members 36 and 37, the lower abutment member 36 being threadedly secured to the upper end of the tubular standard 10. Each of the abutment members 36 and 37 are respectively locked to the ends of the cylindrical body of the casing 35, by the circumferentially arranged lugs 38 formed on the abutment members co-acting with the complementary recesses 39 provided on the ends of said cylindrical body in the manner readily apparent. This construction provides for ease of assembly and disassembly. The upper abutment member 37 is formed with a central opening through which the slotted end of the tubular member 13 extends.

Arranged for seating engagement on the abutment 36 is a pad 40 of insulating material rigidly secured thereto by the counter-sunk screws 41, most clearly shown in Figure 4. Formed integral with the top of the pad 40 is an annular segmental shoulder 42, the parts thereof being arranged between the screw openings, see Figure 4. Adapted to be snugly seated on the pad

40 within the shoulder 42 is a contact disc 45 of conducting material such as copper, having formed thereon a lug 46 adapted to fit in any one of the openings or spaces between the segments of the shoulder 42 whereby to prevent relative rotative movement of the disc on the pad. Both the pad 40 and disc 45 are provided with centrally aligned openings through which a conductor 48 within the tubular standard 10 extends for attachment in any suitable manner to said contact disc.

Slidably positioned within the tubular member 13 is a hollow plunger 50 provided with lugs 51 adapted to slidably fit within the slots 31 of the member 13 as clearly shown in Figure 2. The plunger 50 has formed thereon a flanged head 52 adapted to have secured to the bottom thereof a pad 53 of insulating material, the peripheral edge thereof being provided with a shoulder 54. Seated within the pad 53, in a recess provided therefor, is a contact disc 55 of conducting material such as copper provided with a lug 56 to lock the same against movement relative to said pad. A conductor 58 within the tubular member 13 extends through the hollow plunger 50 and aligned central openings in the pad and disc to be attached in any desired manner to the contact disc 55.

The contact disc 55 is provided with an integral V-shaped annular ring 60 adapted to bear on the co-acting contact disc 45. To maintain this engagement at all times and to compensate for wear there is provided a coil spring 61 surrounding the slotted portion of the tubular member 13, one end bearing on the flanged head 52, the other end thereof engaging to upper cap 30.

Rotation of the frame 15 will carry with it the tubular member 13 and housing 12. In view of the keyed or splined connection of the plunger 50 with the slotted end of the tubular member 13, this rotative movement will be imparted to the contact disc 55 and V-ring 60 which will thus turn on the stationary contact disc 45.

The conductor 58 passes outwardly of the tubular member 13 and is attached to the antenna as at 62. The other conductor 48 also passes out of the tubular standard 10 for connection to the radio receiving set.

To render the turning of the frame 15 on the standard 10 substantially frictionless there is arranged within the housing 12, anti-friction bearings. Each of the abutment members 36 and 37 are respectively provided with raceways 65 for the ball-bearings 66, the construction being such that the same will bear on the caps 30 and 31. If desired wear plates 67 may be provided on said caps for engagement by said ball-bearings.

From the above construction it is apparent that the housing 12 carrying the frame 15 has anti-friction bearing engagement at vertically spaced points with the casing of the contact device 35 rigidly carried by the supporting standard 10, thus insuring not only frictionless rotational movement but also providing a structure having great lateral stability that will act to retain the frame 15 always vertical and prevent buckling of the supports therefor.

By virtue of the contact device construction, the bearing of the V-ring 60 of the contact disc 55 on the contact disc 45 will always be the same and with the same pressure for all angular rotative positions of the frame 15, thus always positively insuring an uninterrupted flow of current therethrough.

As many modifications of my invention will readily suggest themselves to one skilled in the art, I do not limit or confine my invention to the specific details of construction herein described.

Having thus set forth and disclosed the nature of this invention, what is claimed is:

1. A swivel contact device and support for a radio loop antenna including a stationary standard and an antenna supporting member rotatably connected to said standard, a cylindrical casing rigidly connected at its lower end to said standard, said supporting member extending into the upper end of said casing for rotative movement therein and arranged to have a splined connection with a hollow plunger, a flanged head on said plunger carrying a contact disc, a stationary contact disc secured to the bottom of said casing, and spring means associated with said movable contact disc for urging and maintaining the same in engagement with the cooperating stationary contact disc at all times, a pad of insulating material arranged between each of said contact discs and its associated support, said stationary contact disc and its associated insulator pad including means whereby the same may be adjusted relative to said pad; a conductor connecting said antenna loop with said movable contact disc, and a conductor connecting said stationary contact disc with a radio receiving set.

2. A swivel connection for a radio antenna loop comprising a tubular standard, a hollow cylindrical casing open at its upper end rigidly secured at its lower end to the upper end of said standard, anti-friction bearings arranged at each end of said casing, a rotatable housing entirely enclosing said casing in concentric relation and rotatably supported by said anti-friction bearings, a tubular support for said antenna loop rigidly mounted on the upper end of said housing with the lower end of said support projecting into the interior of said casing through its open upper end, guide slots on said support end, a contact member movably mounted within said guide slots for rotative movement with said tubular support, a coiled spring surrounding said tubular support having its upper end abutting the top of the housing and its lower end abutting said contact member to urge the same axially outwardly of said tubular support, and a stationary contact member within said casing rigidly secured to the lower end thereof engaged by said rotating contact member, a conductor extending through said tubular support connected to the rotating contact member, a conductor connected to the stationary contact member extending through the tubular standard, said conductors and contact members providing a closed circuit between said antenna loop and a radio receiving set, and said coil spring functioning to maintain the contacting engagement of said contact members.

3. In the swivel connection as specified in claim 2, said rotating contact member comprising a carrying element, an insulating pad and a contact disc provided with a V-shaped circular edge. The stationary contact member comprising an insulating pad and a flat contact disc adapted to be engaged by said V-shaped circular ridge, said stationary contact member including means whereby the flat contact disc may be locked in a plurality of adjusted angular positions relative to its supporting insulating pad.